This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.

Figure 1A

Homo sapiens immunoglobulin superfamily, member 9 (IGSF9), mRNA

STGCTAGGACCCCCAGTCATCGTGGTGCCCCCCAAGAACAGCACAGTCAATGCCTCCCAGGATGTTTCATTGGCCTGCCATGCTGAGGCATACCCTGCTAACCTCACCTAC GTTCCAGGACAACATCAATGTCTTCCACATTAGCCGCCTGCAGCCCCGGGTGCAGATCCTGGTGGACGGGAGCCTGCTGCTGGCGGCTGCCACCCAGCCTGATGATGCC 36CTGCTACACCTGTGTGCCCAGCAATGGCCTCCTGCATCCACCCTCAGCCTCTGCCTCACTTGTGCTCTGCATGCCGGGGGTGATCCGCTGCCCGGTTCGTGCCAAC 3AGGATGCCCTGGGAGAATACTCCTGCACCCCCTACAACAGTCTTGGTACCGCCGGGCCCTCTCCTGTGACCCGCGTGCTGCTCAAGGCTCCCCCCAGCTTTTATAGAGCGG CCCAAGGAAGAATATTTCCAAGAAGTAGGGCGGGAGCTGCTCATCCCCTGCTCCGCCCAAGGGGACCCTCCTCCTGTTGTCTCTTGGACCAAGGTGGGCCGGGGGCTGCAA SGCCAGGCCCAGGTGGACAGCAACAGCCGCTCATCCTGCGACCATTGACCAAGGAGGCCCACGGGCACTGGGAATGCCAGTGCCAGCAATGCTGTGGCCGAGTGGCCAAC rccacgaacetctacetectececactaccetcatettetcaccaatetececetegtecetttecccaageeteccaatetetctectegeagecttgetttgateete ATCTGCAGAGATTCAGTGTCTGGTACACCCCACTGGCCAAGCGTCCTGACCGAATGCACCATGACTGGGTGTCCTTGGCAGTGCCTGTGGGGGGCTGCTCACTAGTGC CAGGGCTGCAGCCCCACACCCAGTACCAGTTCAGCGTGCTCAGAACAAGCTGGGGAGTGGTCCCTTCAGCGAAATCGTCTTGTCTGCTCCGGAAGGGCTTCCTACCA AATCACTICCIGGGGCTGIGGIAGGGGCTGGGGGCCACIGCAGAGCCCCTIACAAGCCCIGGCTGACIGGACACIGAGGGAGCGGCTGCTGCCAGGCCITCTCCCTGCTGC AGACACCAGCAGCTGGGCCAGTGGCCCTGAGAGATGGCCCCGAAGGGAGGAGCATGTGTGACAGTCAGCAAGAGGAGGAACACACTTGTGGACGAGAACTATGAGTGGGACT ATGGTGTGGGCCTCGGCCGGCCTCCTCAGCCTGGTCATCAGCCAGGGGGCTGACGGTCGAGGGAAGCCTGAGGTGGTATCGGTGGTGGTGGGCCGGGCTGAGGAGAGTGTG STGCTGGGCTGTGACCTGCCCCCCGGCCGGCCCGCCCCCCTGCATGTCATCGAGTGGCTGCGCTTTGGATTCCTGCTTCCCATCTTCATCCAGTTCGGCCTCTACTCT CCCCGAAITGACCCTGAITACGTGGGACGAGTCCGGCTGCAGAAGGGGGCCTCTCTCCAGATTGAGGGTCTCCGGGTGGAAGACCAGGGCTGGTACGAGTGCCGCGTGTTC TTCCTGGACCAGCATTCCCTGAAGACGATTTTGCTAACGGCTCCTGGGTGCATCTGACAGTCAATTCACCCCCTCAATTCCAGGAGACACCTCCTGCTGTGTTGGAAGTG ZAGGAACTGGAGCCTGTGTGTGTGTGTGGCCCGTGGCAGCCCCTGCCTCATGTGACGTGGAAGCTCCGAGGAAAGGACCTTGGCCAGGGCCAGGGCCAGGGCCAGGGCCAAGG COCCAGCTGCACCCGGGGCTTCCCCCCAACAGAGATACCGCCTCCCCTGTCCCCTCCGGGGGTCTGGTGGCAGTGAGGACACCCCGGGGGGTACTCCTGCATTGGGATCCCC IGCCAGGCCTCATCAAGGATGTTCTCTACGAGTTCCGCCTCGTGGCCTTCGCGGGCAGCTTCGTCAGCGACCCCAGCAACACGGCCAACGTCTCCACTTCCGGTCTGGAGG SCTGCCTCCTGAACCGGCGCAGGGCTGCCCGCCGCCGCCGCCAAGCGCCTCCGAAGATCCACCTCTTATCTTCTCCGACCGGGAAGTCAGCTGCACCTCTGCTCTGCTCTG GCTCAGGCAGTCCTGACAGCGTGGCGAAGCTGAAGCTCCCAGGGATCCCCCAGCCTGCGCCAGAGTCTGCTCTGGGGGGGATCCTGCCGGAACTCCCAGCCCCACCCCAAC GGGAGCAGGCAGAACCTCGGACTCCAGCCCAGCGTCTTGGCTCCTTTGACTGTAGCAGCAGCCCCAGTGGGGGCACCCCCAGCCCCTCTGCATTGAAGACATCAGCC CTGTGGCACCCCCTCCAGCAGCCCCACCCAGTCCCTTGCCAGGTCCTGGACCCCTGCTCCAGTACCTGAGCCTGCCCTTCTTCCGAGAGATGAATGTGGATTGGGGACTGG CCCCGCTTGAGGAGCCCAGCCCTGCTGCACCCCCAGATTACATGGATACCCGGCGCTGTCCACCTCATCTTTCCTTCGTTCTCCAGAAACCCCTCCTGTATCCCCAGGG CTGCCTCCTGAACACTGCCCATGTTACTGGCCCTGAGGCCCGCTGTGCTGCCCTTCGGGAGAATTCCTGGCCTTCCGCCGCCGCCGAGATGCTACTAGGGCTCGGCTACC AGCCTATCGACAGCCAGTCCCCCACCCGGAACAGGCCACTCTGCTGTGA

Figure 1B

Homo Sapiens IGSF9 Protein sequence

PLSPPRGLVAVRTPRGVLLHWDPPELVPKRLDGYVLEGRQGSQGWEVLDPAVAGTETELLVPGLIKDVLYEFRLVAFAGSFVSDPSNTANVSTSGLEVYPS RTQLPGLLPQP**VLAGVVGGVCFLGVAVLVSILA**GCLLNRRRAARRRRKRLRQDPPLIFSPTGKSAAPSALGSGSPDSVAKLKLQGSPVPSLRQSLLWGDPA GTPSPHPDPPSSRGPLPLEPICRGPDGRFVMGPTVAAPQERSGREQAEPRTPAQRLARSFDCSSSSPSGAPQPLCIEDISPVAPPPAAPPSPLPGPGPLLQ YLSLPFFREMNVDGDWPPLEEPSPAAPPDYMDTRRCPTSSFLRSPETPPVSPRESLPGAVVGAGATAEPPYTALADWTLRERLLPGLLPAAPRGSLTSQSS **mvwclglavlslvisggadg**rgkpevvsvvgraeesvvlgcdllppagrpplhviewlrfgfllpifiqfglyspridpdyvgrvrlokgaslqieglrve DQGWYECRVFFLDQHIPEDDFANGSWVHLTVNSPPQFQETPPAVLEVQELEPVTLRCVARGSPLPHVTWKLRGKDLGQGQGQVQVQNGTLRIRRVERGSSG VYTCQASSTEGSATHATQLLVLGPPVIVVPPKNSTVNASQDVSLACHAEAYPANLTYSWFQDNINVFHISRLQPRVQILVDGSLRLLATQPDDAGCYTCVP IERPKEEYFQEVGRELLIPCSAQGDPPPVVSWTKVGRGLQGQAQVDSNSSLILRPLTKEAHGHWECSASNAVARVATSTNVYVLGTSPHVVTNVSVVALPK GANVSWEPGFDGGYLQRFSVWYTPLAKRPDRMHHDWVSLAVPVGAAHLLVPGLQPHTQYQFSVLAQNKLGSGPFSEIVLSAPEGLPTTPAAPGLPPTEIPP SRGSASFLRPPSTAPSAGGSYLSPAPGDTSSWASGPERWPRREHVVTVSKRRNTSVDENYEWDSEFPGDMELLETLHLGLASSRLRPEAETELGVKTPEEG SNGLLHPPSASAYLTVLCMPGVIRCPVRANPPLLFVSWTKDGKALQLDKFPGWSQGTEGSLIIALGNEDALGEYSCTPYNSLGTAGPSPVTRVLLKAPPAF CLLNTAHVTGPEARCAALREEFLAFRRRDATRARLPAYRQPVPHPEQATLL

Figure 2

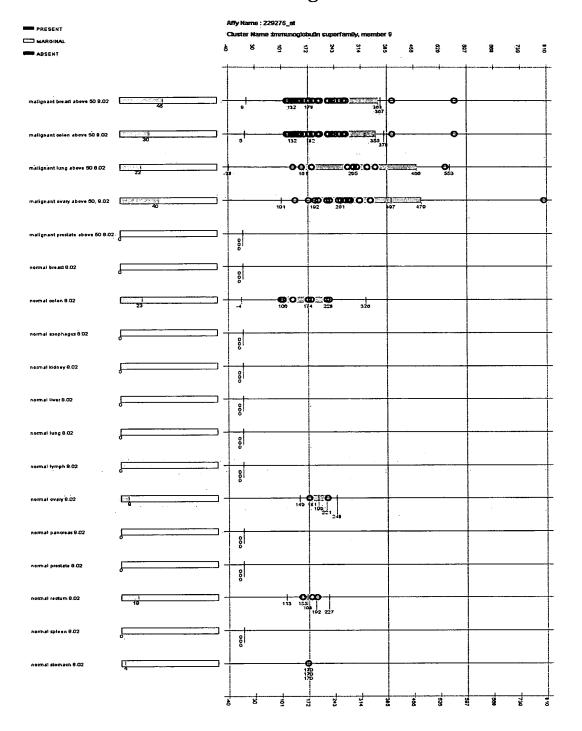


Figure 3

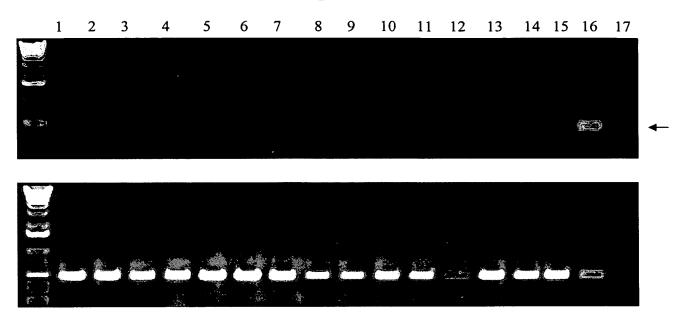
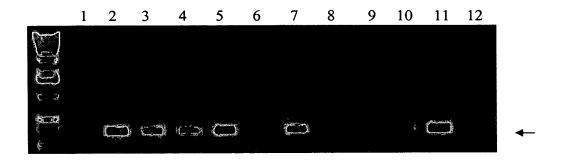


Figure 4



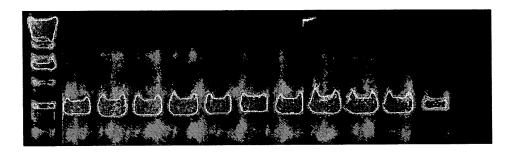


Figure 5

Figure 6

Patient A Patient B Patient C Patient D Patient E

N T N T N T N T N T + -





Figure 7

1 2 3 4 5



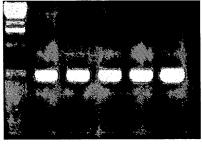


Figure 8

(A) Short form soluble IGSF9-Ig nucleotide sequence

atggtgtggtgcctcggcctggccgtcctcagcctggtcatcagccagggggtgacggtcgagggaagcctgaggtgg tateggtggtgggeegggetgaggaggtgtggtgetgggetgtgacetgetgeeceeggeeggeeggeeceeetgea tgtcatcgagtggctgcgctttggattcctgcttcccatcttcatccagttcggcctctactctccccgaattgaccctgattacg tgggacgagtccggctgcagaagggggcctctctccagattgagggtctccgggtggaagaccagggctggtacgagtg cegegtgttcttcetggaccagcacatccetgaagacgattttgctaacggctcctgggtgcatctgacagtcaattcaccccct caat to caggaga cacete ctgctgtgttggaagtgcaggaactggagcctgtgaccctgcgttgtgtgcccgtggcaggaactggagcctgtgaccctgcgttgtgtgcccgtggcaggaactggagcctgtgaccctgcgttgtgtggaagtgcaggaactggagcctgtgaccctgcgttgtggaagtgcaggaactggagcctgtgaccctgcgttgtgcccgtggaagtgcaggaactggagcctgtgaccctgcgttgtggaccctgcgagcaggaactggagcctgtgaccctgcgttgtgtggaccctgtgagcccgtggaagtgcaggaactggagcctgtgaccctgcgttgtgagcccgtggaagtgcaggaactggagcctgtgagccctgcgagcaggaactggagcaggaactggagcaggaactggagcaggaactggagcaggaactggagcaggaactggagcaggaactggagcaggaactgagcaggaactggagaactggaactggagaactggagaactggagaactggagaactggagaactggagaactggagaactggcccctgcctcatgtgacgtggaagctccgaggaaaggaccttggccagggccaggtgcaagtgcagaacgggacgctgcggatccgccgggtagagcgaggcagctctggggtctacacctgccaagcctccagcactgagggcagcg ccaccace gccacca gct gct agt gct agg acccccag tcatcgt ggt gccccccaa gaaca gcacagt caat gcctcccaggatgttt cattggcetgceatgctgaggcataccetgctaacctcacctacagctggttccaggacaacatcaatgtcttcceggetgetacacctgtgtgcccagcaatggcctcctgcatccaccctcagcctctgcctacctcactgtgctctgcatgccgggggtgatccgctgcccggttcgtgccaaccccccactgctctttgtcagctggaccaaggatggaaaggccctgcagc tggacaagttccctggctggtcccagggcacagaaggctcactgatcatcgccctggggaacgaggatgccctgggaga tectect gttg tetettggae caa ggtgggeegggggtgea aggee caggtggae agea acagea geet catectgcgaccattgaccaaggaggcccacgggcactgggaatgcagtgccagcaatgctgtggcccgagtggccacctccacgaacgtctacgtgctgggcactagccctcatgttgtcaccaatgtgtccgtggtggctttgcccaagggtgccaatgtctc etgggageetggetttgatggtggttatetgeagagatteagtgtetggtaeaeceeaetggeeaagegteetgaeegaatg caccatgactgggtgtccttggcagtgcctgtgggggctgctcacctcctagtgccagggctgcagccccaccacagta ccagttcagcgtgctagctcagaacaagctggggagtggtccttcagcgaaatcgtcttgtctgctccggaagggcttcct accacgccagctgcacccgggcttcccccaacagagataccgcctcccctgtcccctccgcggggtctggtggcagtga ggacaccccggggggtactcctgcattgggatcccccagagctggtccctaagagactggatggctacgtcttggaaggc eggeaaggeteceagggetgggaggtgetggaceeggetgtggcaggeacagaaacagagetgetggtgccaggcet catcaaggatgttetetacgagtteegeetegtggeettegegggeagettegteagegaeeeeageaacaeggeeaaegt ctccacttccggtctggaggtctacccttcgcgcacgcagctgccgggcctcctgcctcagccctctagccaggagcccaa aagetetgacaaaacteacacateeccacegteeccageacetgaacteetggggggacegteagtetteetetteeccee aaaaccca aggacaccct cat gatctcccggacccct gaggtcacat gcgt ggt ggt ggacgt gagccac gaagaccctgaggtcaagttcaactggtacgtggacggcgtggaggtgcataatgccaagacaaagccgcgggaggagcagtacaac agcacgtaccgtgtggtcagcgtcctcaccgtcctgcaccaggactggctgaatggcaaggagtacaagtgcaaggtctc caacaaagccctcccagcccccatcgagaaaaccatctccaaagccaaagggcagccccgagaaccacaggtgtacac tegeegtggagtgggagageaatgggeageeggagaacaactacaagaccaegeeteeegtgetggacteegaegget aggetetgeacaaceactacaegeagaagageeteteeetgteteegggtaaatga

(B) Short form soluble IGSF9-Ig protein sequence

mvwclglavlslvisqgadgrgkpevvsvvgraeesvvlgcdllppagrpplhviewlrfgfllpifiqfglyspridpd yvgrvrlqkgaslqieglrvedqgwyecrvffldqhipeddfangswvhltvnsppqfqetppavlevqelepvtlrcv argsplphvtwklrgkdlgqgqqqvqvqngtlrirrvergssgvytcqasstegsathatqllvlgppvivvppknstvn asqdvslachaeaypanltyswfqdninvfhisrlqprvqilvdgslrllatqpddagcytcvpsngllhppsasayltvl cmpgvircpvranppllfvswtkdgkalqldkfpgwsqgtegsliialgnedalgeysctpynslgtagpspvtrvllka ppafierpkeeyfqevgrellipcsaqgdpppvvswtkvgrglqgqaqvdsnsslilrpltkeahghwecsasnavar vatstnvyvlgtsphvvtnvsvvalpkganvswepgfdggylqrfsvwytplakrpdrmhhdwvslavpvgaahll vpglqphtqyqfsvlaqnklgsgpfseivlsapeglpttpaapglppteippplspprglvavrtprgvllhwdppelvp krldgyvlegrqgsqgwevldpavagtetellvpglikdvlyefrlvafagsfvsdpsntanvstsglevypsrtqlpgll pqpssqepkssdkthtsppspapellggpsvflfppkpkdtlmisrtpevtcvvvdvshedpevkfnwyvdgvevh naktkpreeqynstyrvvsvltvlhqdwlngkeykckvsnkalpapiektiskakgqprepqvytlppsrdeltknqv sltclvkgfypsdiavewesngqpennykttppvldsdgsfflyskltvdksrwqqgnvfscsvmhealhnhytqksl slspgk*

(C) Long form soluble IGSF9-Ig nucleotide sequence

atggtgtggtgcctcggcctggccgtcctcagcctggtcatcagccagggggctgacggtcgagggaagcctgaggtgg tgtcatcgagtggctgcgctttggattcctgcttcccatcttcatccagttcggcctctactctccccgaattgaccctgattacg tgggacgagtccggctgcagaagggggcctctctccagattgagggtctccgggtggaagaccagggctggtacgagtgccgcgtgttcttcctggaccagcacatccctgaagacgattttgctaacggctcctgggtgcatctgacagtcaattcacccc ctcaattccaggagacacctcctgctgtgttggaagtgcaggaactggagcctgtgaccctgcgttgtgtggcccgtggca gcccctgcctcatgtgacgtggaagctccgaggaaaggaccttggccagggccagggccaggtgcaagtgcagaacg ggaegetgeggateegeeggtagagegaggeagetetggggtetaeacetgeeaageeteeageaetgagggeageg ccaccacgccaccagctgctagtgctaggaccccagtcatcgtggtgcccccaagaacagcacagtcaatgcctcc caggatgtttcattggcctgccatgctgaggcataccctgctaacctcacctacagctggttccaggacaacatcaatgtcttc cacattagccgcetgcagcccgggtgcagatcctggtggacgggagcctgcggctgctggccacccagcctgatgatg ceggetgeta cacet g t g t g ceage a at g g cet cet g cate cace cteag cet cet g cet accet g t g cet accet g cet g cet accet g cet cet g cet accet g cet g ceccaggtgacagctatgcctcctgagacacccctgcccataggcatgccggggggtgatccgctgcccggttcgtgccaacc ccc a ctg ctctttg tcag ctg gac caa gg at gg aa a gg ccct g cag ctg gac aa gt tccct gg ctg gt ccc a gg gcac a gac a gac ag ttccct gg ctg gt ccc a gg gcac a gac ag ttccct gac tg ctc a gac ag ttccct gac ag ttccctcgccgggccctctcctgtgacccgcgtgctgctcaaggctccccagcttttatagagcggcccaaggaagaatatttcca agaagtaggggggagctgctcatcccetgctccgcccaaggggaccctcctctgttgtctcttggaccaaggtgggccgggggctgcaaggccaggtcgacagcaacagcagcctcatcctgcgaccattgaccaaggaggcccacgggcaetgggaatgcagtgccagcaatgctgtggcccgagtggccacctccacgaacgtctacgtggtggcactagccctca tgttgtcaccaatgtgtccgtggtggctttgcccaatggtgccaatgtctcctgggagcctggctttgatggtggttatctgcaggggctgctcacctcctagtgccagggctgcagccccacacccagtaccagttcagcgtgctagctcagaacaagctgg ggagtggtcccttcagcgaaatcgtcttgtctgctccggaagggcttcctaccacgccagctgcacccgggcttccccaa cagagataccgcctccctgtcccctccgcgggggtctggtggcagtgaggacaccccggggggtactcctgcattgggatccccagagctggtccctaagagactggatggctacgtcttggaaggccggcaaggctcccagggctgggaggtgctggacceggetgtggcaggcacagaaacagagetgetggtgccaggcctcatcaaggatgttctctacgagttccgcctcgtggcettegegggcagettegteagegaceceageaacaeggceaacgtetecaetteeggtetggaggtetaceettegeg cacgcagctgccgggcctcctgcctcagccctctagccaggagcccaaaagctctgacaaaactcacacatccccaccgt cccagcacctgaactcetggggggaccgtcagtcttcctcttcccccaaaaacccaaggacaccctcatgatctcccgga ccct gagg t cacatg cg tg g tg g tg gacgt gag ccac gaag accct gagg t caa g tt caactg g tacgt g gacg g cg tacgt gag tacgt gag gacgt gag tacgt gag tacgt gag gacgt gag tacgt gagggaggtgcataatgccaagacaaagccgcgggaggagcagtacaacagcacgtaccgtgtggtcagcgtcctcaccgt cctgcaccaggactggctgaatggcaaggagtacaagtgcaaggtctccaacaaagccctcccagccccatcgagaaa accatctccaaagccaaagggcagccccgagaaccacaggtgtacaccctgcccccatcccgggatgagctgaccaag a accagg t cag cct g acct g ct g g t caa ag g ctt ctat cccag c g acat c g ccg t g g ag t g g g ag ag caat g g g cag can be a comparable of the comparableeggagaacaactacaagaccacgcetcccgtgctggactccgacggctccttcttcctctacagcaagctcaccgtggaca agagcaggtggcagcagggggaacgtcttctcatgctccgtgatgcatgaggctctgcacaaccactacacgcagaagag cctctcctgtctccgggtaaatga

(D) Long form soluble IGSF9-Ig protein sequence

mvwclglavlslvisqgadgrgkpevvsvvgraeesvvlgcdllppagrpplhviewlrfgfllpifiqfglyspridpd yvgrvrlqkgaslqieglrvedqgwyecrvffldqhipeddfangswvhltvnsppqfqetppavlevqelepvtlrcv argsplphvtwklrgkdlgqgqqqvqvqngtlrirrvergssgvytcqasstegsathatqllvlgppvivvppknstvn asqdvslachaeaypanltyswfqdninvfhisrlqprvqilvdgslrllatqpddagcytcvpsngllhppsasayltvl ypaqvtamppetplpigmpgvircpvranppllfvswtkdgkalqldkfpgwsqgtegsliialgnedalgeysctpy nslgtagpspvtrvllkappafierpkeeyfqevgrellipcsaqgdpppvvswtkvgrglqgqaqvdsnsslilrpltke ahghwecsasnavarvatstnvyvlgtsphvvtnvsvvalpkganvswepgfdggylqrfsvwytplakrpdrmhh dwvslavpvgaahllvpglqphtqyqfsvlaqnklgsgpfseivlsapeglpttpaapglppteippplspprglvavrt prgvllhwdppelvpkrldgyvlegrqgsqgwevldpavagtetellvpglikdvlyefrlvafagsfvsdpsntanvst sglevypsrtqlpgllpqpssqepkssdkthtsppspapellggpsvflfppkpkdtlmisrtpevtcvvvdvshedpev kfnwyvdgvevhnaktkpreeqynstyrvvsvltvlhqdwlngkeykckvsnkalpapiektiskakgqprepqvy tlppsrdeltknqvsltclvkgfypsdiavewesngqpennykttppvldsdgsfflyskltvdksrwqqgnvfscsvm healhnhytqkslslspgk

(E) Long form full length IGSF9 nucleotide sequence

atggtgtggtgcctcggcctggccgtcctcagcctggtcatcagccagggggctgacggtcgagggaagcctgaggtgg atgtcatcgagtggctgcgctttggattcctgcttcccatcttcatccagttcggcctctactctccccgaattgaccctgattac gtgggacgagtccggctgcagaagggggcctctctccagattgagggtctccgggtggaagaccagggctggtacgagtgeegegtgttetteetggaeeageaeateeetgaagaegattttgetaaeggeteetgggtgeatetgaeagteaatteaeee cctcaattccaggagacacetcctgctgtgtggaagtgcaggaactggagcctgtgaccctgcgttgtgtggcccgtggc gggacgctgcggatccgccgggtagagcgaggcagctctggggtctacacctgccaagcctccagcactgagggcagc gccaccaagccaccagetgctagtgctaggaccccagtcatcgtggtgcccccaagaacagcacagtcaatgcct cccaggatgtttcattggcctgccatgctgaggcataccctgctaacctcacctacagctggttccaggacaacatcaatgtc at g ccg g ctg ctaca cct g tg tg ccca g caat g g cct cct g cat cca ccc tca g cct ct g cct a cct cact g tg ct ctacc cagcccaggtgacagctatgcctcctgagacacccctgcccataggcatgccggggggtgatccgctgcccggttcgtgccaa cccccact g ctctttg t cag ctg g accaa g g at g g a a a g g ccct g cag ctg g a caa g t t ccct g g ct g g t ccca g g g caa g ct g g a caa g t t ccct g g ct g g t ccca g g g caa g ct g ca g ct g c ca g g c caa g g c caa g g c caa g c c caa g g c caa g c caa g g c caa g ccaga agget cact gat catego cet ggg gaa ac gag gat gee et ggg agaa tact cet ge accece taca acag tet t ggt and the second secondcaagaagtaggggggagctgctcatcccctgctccgcccaaggggaccctcctctgttgtctcttggaccaaggtggg ccgggggctgcaaggccaggcccaggtggacagcaacagcagcctcatcctgcgaccattgaccaaggaggcccacgggcactgggaatgcagtgccagcaatgctgtggcccgagtggccacctccacgaacgtctacgtggtggcactagccct gtgggggctgctcacctcctagtgccagggctgcagccccacacccagtaccagttcagcgtgctagctcagaacaagct ggggagtggtccttcagcgaaatcgtcttgtctgctccggaagggcttcctaccacgccagctgcacccgggcttccccc a a cagagata ccgcctccct gtccctccgcggggtctggtggcagtgaggacaccccggggggtactcctgcattgggatcccccagagctggtccctaagagactggatggctacgtcttggaaggccggcaaggctcccagggctgggaggtgc tggacccggctgtggcaggcacagaaacagagctgctggtgccaggcctcatcaaggatgttctctacgagttccgcctcgtggccttcgcgggcagcttcgtcagcgaccccagcaacacggccaacgtctccacttccggtctggaggtctacccttcg cgcacgcagctgccgggcctcctgcctcagcccgtgctggccggcgtggtgggcggagtctgctttctgggagtggccg teettgtgageateetggeeggetgeeteetgaaeeggegeagggetgeeegeegeegeegeaagggeeteegeeaaga to cace tetrate the tetrate gas aggregate agctgaagetccagggatccccagtccccagcctgcgccagagtctgctctggggggatcctgccggaactcccagcccccacceggatectecatetageegggaceettacetetggageecatttgeeggggeecagaegggggetttgtgatgggg gtcctttgactgtagcagcagcagccccagtggggcaccccagcccctctgcattgaagacatcagccctgtggcaccccatgtggatggggactggcccccgcttgaggagcccagcctgctgcacccccagattacatggatacccggcgctgtccc acct catctt teet tegt tete cagaa acccete ctg tate cee cag ggaat cactteet t gg gg ctg t gctcgaggcagcctcaccagccagagcagtgggcgaggcagcgcttcgttcctgcggccccctccacagccccctctgc aggaggcagctacctcagccctgctccaggagacaccagcagctgggccagtggccctgagagatggccccgaaggg agcatgtggtgacagtcagcaagaggaggaacacatctgtggacgagaactatgagtgggactcagaattccctgggga catggaattgctggagactttgcacctgggcttggccagctcccggctcagacctgaagctgagccagagctaggtgtgaa gactccagaggagggctgcctcctgaacactgcccatgttactggccctgaggcccgctgtgctgcccttcgggaggaatt cctggccttccgccgccgagatgctactagggctcggctaccagcctatcgacagccagtcccccaccccgaacaggccactctgctgtga

(F) Long form full length IGSF9 protein sequence

mvwclglavlslvisqgadgrgkpevvsvvgragesvvlgcdllppagrpplhviewlrfgfllpifiqfglyspridpd yvgrvrlqkgaslqieglrvedqgwyecrvffldqhipeddfangswvhltvnsppqfqetppavlevqelepvtlrcv argsplphvtwklrgkdlgqgqqvqvqngtlrirrvergssgvytcqasstegsathatqllvlgppvivvppknstvn asqdvslachaeaypanltyswfqdninvfhisrlqprvrilvdgslrllatqpddagcytcvpsngllhppsasayltvly paqvtamppetplpigmpgvircpvranppllfvswtkdgkalqldkfpgwsqgtegsliialgnedalgeysctpyn slgtagpspvtrvllkappafierpkeeyfqevgrellipcsaqgdpppvvswtkvgrglqgqaqvdsnsslilrpltkea hghwecsasnavarvatstnvyvlgtsphvvtnvsvvalpkganvswepgfdggylqrfsvwytplakrpdrmhhd wvslavpvgaahllvpglqphtqyqfsvlaqnklgsgpfseivlsapeglpttpaapglppteippplspprglvavrtpr gvllhwdppelvpkrldgyvlegrqgsqgwevldpavagtetellvpglikdvlyefrlvafagsfvsdpsntanvstsg levypsrtqlpgllpqpvlagvvggvcflgvavlvsilagcllnrrraarrrrkrlqdpplifsptgksaapsalgsgspds vaklklqgspvpslrqsllwgdpagtpsphpdppssrgplpepicrgpdgrfvmgptvaapqersgreqaeprtpaq rlarsfdcsssspsgapqplciedispvapppaappsplpgpgpllqylslpffremnvdgdwppleepspaappdy mdtrrcptssflrspetppvspreslpgavvgagataeppytaladwtlrerllpgllpaaprgsltsqssgrgsasflrppst apsaggsylspapgdtsswasgperwprrehvvtvskrrntsvdenyewdsefpgdmelletlhlglassrlrpeaepe lgvktpeegcllntahvtgpearcaalreeflafrrrdatrarlpayrqpvphpeqatll

(G)Protein sequence comparison of long and short form IGSF9

	1	10	20	30	40	50	60	70	80	90	100	110	120	130
long short Consensus	HYHCLE	LAVLSLVIS	QGADGRGKPE	VVSVVGRREE	SVYLGCDLL	.PPRGRPPLH\	/IEHLRFGFLL	PIFIQFGLY	SPRIDPDYVGF	RVRLQKGASLO	IEGLRVEDQ	GHYECRVFFLO	OQHIPEODFAN OQHIPEODFAN OQHIPEODFAN	GSHYHL
	131	140	150	160	170	180	190	200	210	220	230	240	250	260
long short Consensus	TVNSP	QFQETPPAY	LEVQELEPYT	LRCYARGSPL	PHYTHKLRO	KDLGQGQGQ	OVONGTLRIF	RVERGSSGY	YTCQRSSTEGS	SATHATOLLYL	GPPYIYYPPI	KNSTVNASQDY	/SLACHRERYP /SLACHRERYP /SLACHRERYP	ANLTYS
	261	270	280	290	300	310	320	330	340	350	360	370	380	390
long short Consensus	HEODN	NVFHISRLO	PRVOILVDGS	SLRLLATOPOE	DAGCYTCVPS	NGLLHPPSAS	SAYLTYLC	·	MPGVIRO	PYRANPPLLE	VSHTKDGKRI	LOLDKFPGHSQ	GTEGSLIIAL GTEGSLIIAL GTEGSLIIAL	GNEDAL
	391	400	410	420	430	440	450	460	470	480	490	500	510	520
long short Consensus	GEYSCI GEYSCI	PYNSLGTAG	PSPYTRYLLI	RPPAFIERP	KEEYFQEYG	ELLIPCSAQU	GOPPPYYSHT	YGRGLQGQA	QYDSNSSLILI	RPLTKERHGH	IECSASNAVAI	RVATSTNVYVL	.GTSPHVYTNV .GTSPHVYTNV .GTSPHVYTNV	SVVALP
	521	530	540	550	560	570	580	590	600	610	620	630	640	650
long short Consensus	KGRNY!	SHEPGFOGGY	LORFSYHYTE	PLAKRPORMHI	IDHYSLAVP \	/GAAHLLYPGI	LOPHTQYQFS	/LAQNKLGSG	PFSEIVLSAPI	EGLPTTPAAPO	LPPTEIPPP	LSPPRGLYAVA	RTPRGYLLHAD RTPRGYLLHAD RTPRGYLLHAD	PPELVP
	651	660	670	680	690	700	710	720	730	740	750	760	770	780
long short Consensus	KRLDG	YVLEGRQGSQ	GHEVLDPAVA	GTETELLVP	GLIKDVLYER	RLVAFAGSFY	VSDPSNTANV9	STSGLEVYPS	RTOLPGLLPQ	PYLAGYYGGYO	FL6VAVLVS	ILAGCLLHRRE	RAARRRRKRLR RAARRRRKKLR RAARRRKRKRLR	QDPPLT
	781	790	800	810	820	830	840	850	860	870	880	890	900	910
long short Consensus	FSPTG	KSAAPSALGS	GSPOSYAKLI	KLQGSPYPSLI	ROSLLHGDPI	16TPSPHP0PI	PSSRGPLPLEI	PICRGPDGRF	VHGPTVRRPQI	ERSGREQAEPI	RTPAQRLARS	FDCSSSSPSGF	RPOPLCIEDIS RPOPLCIEDIS RPOPLCIEDIS	PYAPPP
	911	920	930	940	950	960	970	980	990	1000	1010	1020	1030	1040
long short Consensus	ARPPSI	PLPGPGPLLQ	YLSLPFFRE	INVDGOUPPLI	EEPSPRAPPI	YNDTRRCPT	SSFLRSPETPI	PYSPRESLPG	AVVGAGATAEI	PPYTALADATI	RERLLPGLL	PARPRGSLTS	OSSGRGSASFL OSSGRGSASFL OSSGRGSASFL	RPPSTA
	1041	1050	1060	1070	1080	1090	1100	1110	1120	1130	1140	1150	1160	1170
long short Consensus	PSAGG:	SYLSPAPGOT	SSHASGPERI	IPRREHVYTY!	SKRRNTSYDI	NYEHOSEFPI	GOMELLETLHI	_GLASSRLRP	ERETELGYKT	PEEGCLLNTRI	IYTGPERRCR	ALREEFLAFRE	RRRDATRARLP RRRDATRARLP RRRDATRARLP	AYROPY
long short Consensus	1171 : I PHPEQI PHPEQI PHPEQI	1 91LL 91LL												

(H) Nucleotide sequences of alternate splice forms of IGSF9 in the region of exons 5-11 sequenced from tumor xenograft samples

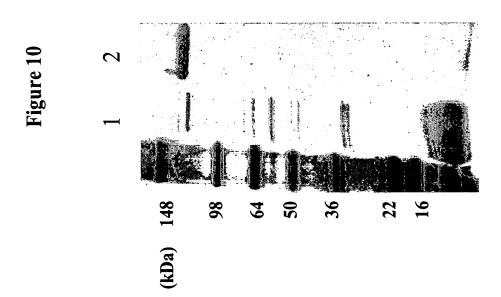
NCI-H69 IGSF9 fragment - clone 1

NCI-H69 IGSF9 fragment - clone 2

Ovcar-3 IGSF9 fragment - clone 1

9H Continued

Ovcar-3 IGSF9 fragment - clones 2-4



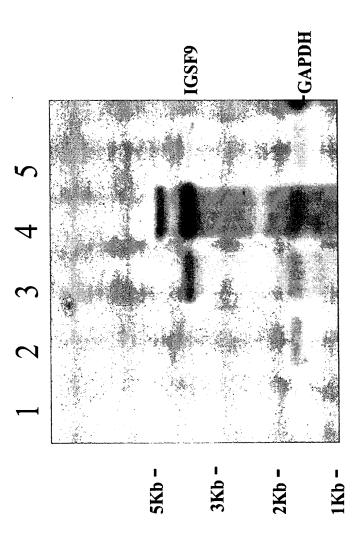
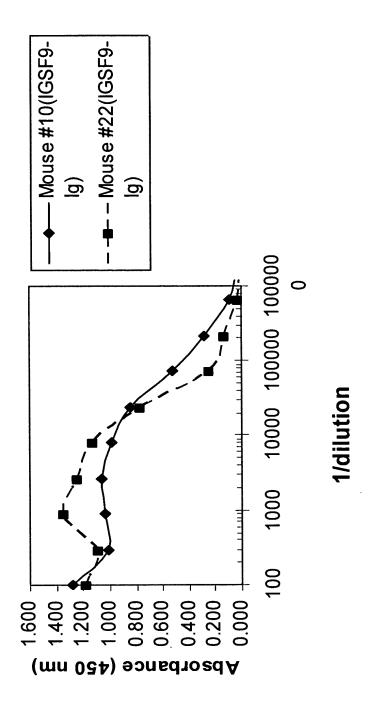
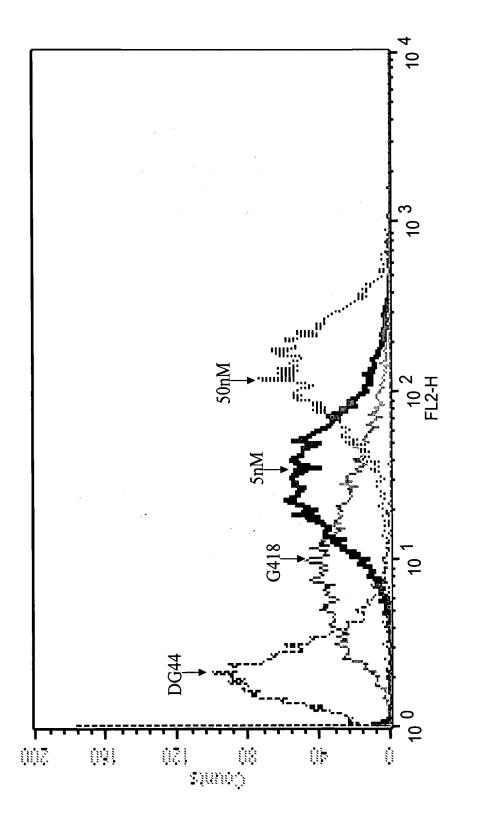


Figure 11







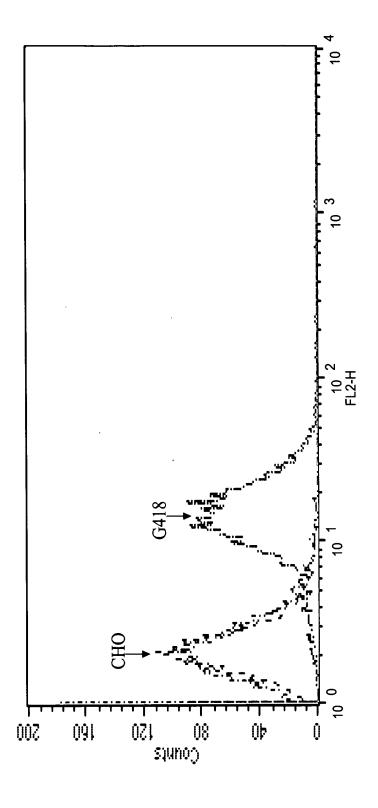


Figure 14

Figure 15

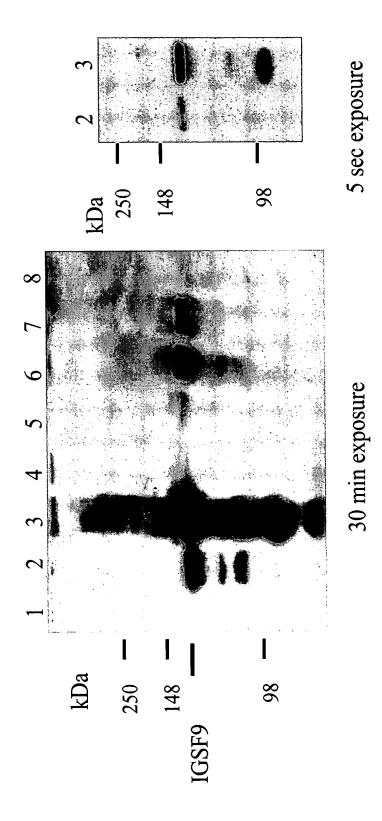
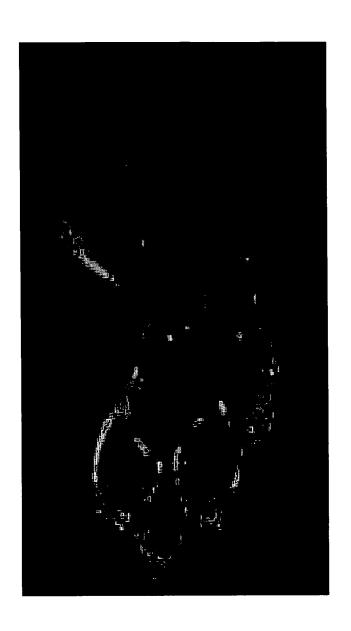
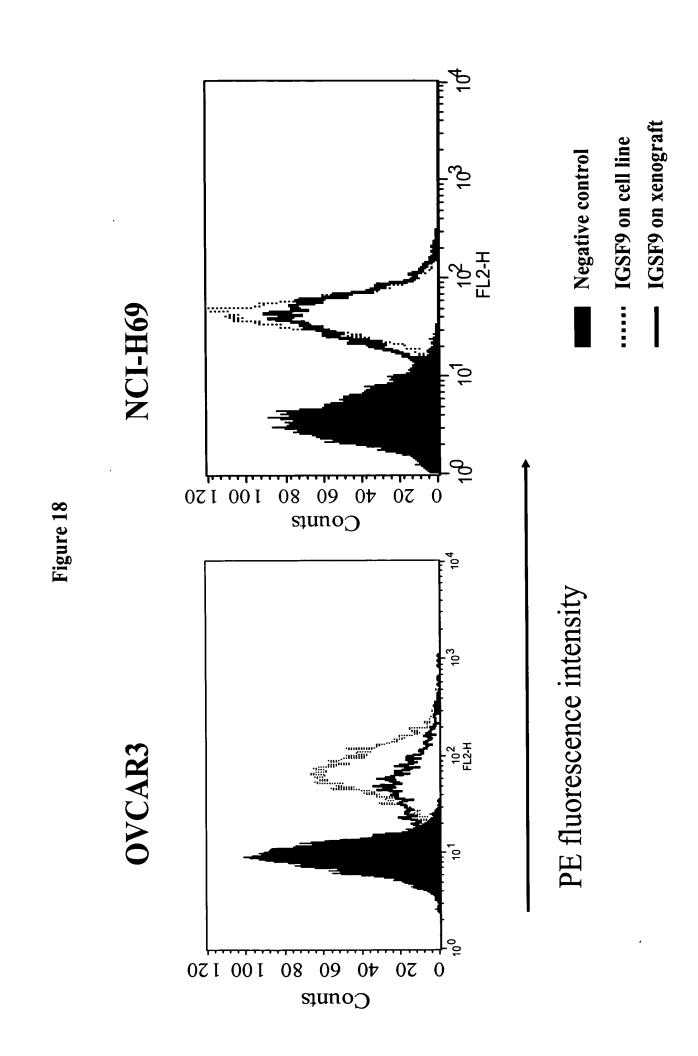
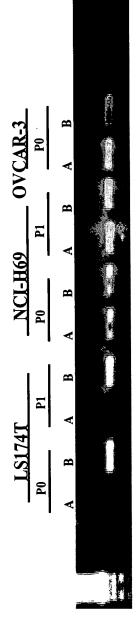


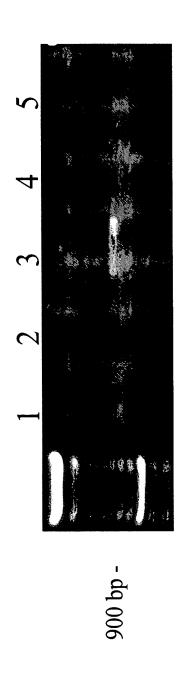
Figure 16

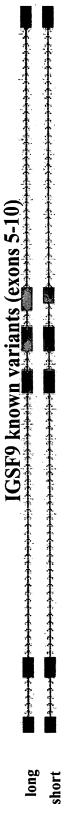






A: IGSF9 – 444 bp B: GAPDH – 482 bp





M

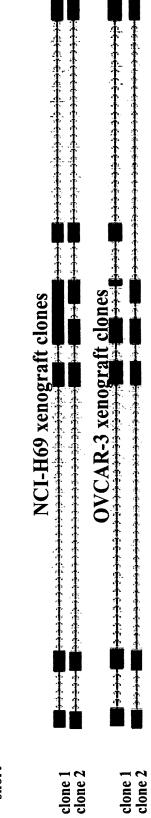


Figure 20

						Section 17	71 nc
1137	1150	,1160	1170	1180	1190	The second secon	1207
CICIGO	CTCTGCCTACCTCACTGTGCTCT	GCTCT					
CTCTGCC	CTCTGCCTACCTCACTGTGCTCT	GCTCT	GCCTGACCTC	AGCTICICCCI	CAGCCIGCI	CCCTTCCCCTG	299
CTCTGCC	CICTGCCTACCTCACTGTGCTCT- CICTGCCTACCTCACTGTGCTCT	GCTCT			 	Section	Section 18
1208	1220	,1230	1240	1250	,1260	The state of the s	1278
				ACCC	AGCCCAGGT	-ACCCAGCCCAGGTGACAGCTATGCCTC -ACCCAGCCCAGGTGACAGCTATGCCTC	CTC
CAGGCCA	CAGGCCAAGCCCTCTCCCCCAACTTGCCCCCAGACCCCAGCCCAGGTGACTTTGCCTTCTCTCTC	CCCAACITG	CCACIATIT	CCCCCAGACCC	AGCCCAGGT AGCCCAGGT AGCCCAGGT	AGACCCAGCCCAGTGACAGCTATGCCTCACCCAGCCCAGGTGACAGCTATGCCTC ACCCAGCTCACAGCTATGCCTC ACCCAGCTCACAGCTATGCCTC	
						Section 19	91 n
CTGAGAC CTGAGAC	1279 1290 1390 1300 1300 1340 1340 1370 1370 1330 1390 1349 CT GAGGAGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	1300 ATAGGCATGC ATAGGCATGC	CGGGGGTGAT	1320 ccccrccccc ccccrccccc	1330 TrcGrecca	ACCCCCCACTG ACCCCCCACTG	CI CI CI
1 6 1 6		1			4000E00EE	ACCCCCACTG	CTC
CTGAGA(CIGAGACACCCCIGCCCATAGGCAIGCCGGGGGTGAICCGCTGCCCGGTTCGTGCCCCCAACCCCCACTGCTC	AT AGGCATGC	CGGGGGTGAT	000000000000000000000000000000000000000	TTCGTGCCA	ACCCCCCACTG	CIC
CTGAGA(CTGAGACACCCCTGCCCATAGGCATGCCGGGGGTGATCCGCTGCCCGGTTCGTGCCAACCCCCCAACGCTTGCTC — Setion 20	ATAGGCATGC	CGGGGGTGAT	೨೨၁၁೨೩೩೨೨၁၁	TCGTGCCA	ACCCCCACT GCT C	CTC
1350	1360	1370	1380	1390	1400	1410	1420
		GATGGAAAG	GCCCTGCAGC	TGGACAAG			
TITEL	TITGICAGCIGGACCAAGGAIGGAAAGGCCCIGCAGCIGGACAAG	SGATGGAAAG	GCCCTGCAGC	TGGACAAG		1 1 1 1 1 1 1 1	
	CTGGACCAAGGATGGAAAGGCCCTGCAGCTGGACAAGAGAGAG	SGATGGAAAG	GCCCTGCAGC	TGGACAAGAAG	AGAGATGAT	CTCTGGGGAAA	ATG
TITGICA	ITGTCAGCTGGACCAAGGATGGAAAGGCCCTGCAGCTGGACAAGAGAGAG	SGATGGAAAG	GCCCTGCAGC	TGGACAAGAAG	AGAGATGAT	CTCTGGGGAAA	ATG
TTTGTC	IIGICAGCIGGACCAAGGAIGGAAAGGCCCIGCAGCIGGACAAGAAGAGAGAG	3GAT GGAAAG 3GAT GGAAAG	GCCCTGCAGC	TGGACAAGAAG TGGACAAGAAG	AGAGATGAT	CICCGGGGAAAATG CIC GGGGAAAAIG	Arg Arg
1421	,1430	1440	,1450	,1460	1470		1491
		1 1 1 1 1 1 1 1 1			1 1 1 1 1 1 1 1 1 1		
ATGGCA		AGGAGAACTG AGGAGAACTG	AAGTTTCTT	CGTGTGATGAC CGTGTGATGAC	TGGGAAATT TGGGAAATT		
ATGGCA	ATGGCAAAGAGTCAAGAAGAGAACTGAAGTTTCTTTCGTGTGATGACTGGGAAATTGTGTGTG	AGGAGAACTG	AAGTTTCTTT	CGTGTGATGAC	TGGGAAATT	GTGTGTCCCGG	999
200010	Veve Teveve					Section	Section 22
1492	1500	,1510	,1520	1530	,1540	1550	1562
1 1 1 1		TTCCCTG	SCIGGICCCAG	GGCACAGAAGC	CTCACTGAT	TICCTGGCTGGTCCCAGGCACAGAAGGCTCACTGATCATCGCTGGGGA	400 900 900 900
1 6	THE THE THE THE THE THE THE TRUE CONTROL TO THE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRU		りんこうしょうじょうじゅう	GGCACAGAAG	SCICACIGAT	CATCGCCCTGG	499 909
AATACA	AATACACACTTCTTACCAGTTCCCTGGCTGGTCCCAGGGCACAGAAGGCTCACTGATCGCCCTGGGGGA	AGTICCCTGC	SCIEGIICCCAG	GGCACAGAAGG	SCICACIGAL	CATCGCCCTGG	GGA
AACACA	AACACACACTTCTTACCAGTTCCCTGGCTGGTCCCAGGGCACAGAAGGCTCACTGATCATGGCGTGGGGA	AGTICCCIG	SCIGGICCCAG	GGCACAGAAGG	SCICACIGAI	CATCGCCCTGG	GGA
AA ACA	ACACACTICITACCAGIICCCIGGCIGGICCCAGGGCACAGAAGGCICACIGAICAICGCCCTGGGGA	AGTTCCCTG	SCTGGTCCCAG	GGCACAGAAG	SCTCACTGAT	CATCGCCCTGG	GGA

282	290	300	310	320	330	340	355
SLR	LLATQPDDA	GCYTCVPSNG	LLHPPSASA	YLTVLYPAQV	TAMPPETPLP	SLRLLATQPDDAGCYTCVPSNGLLHPPSASAYLTVLYPAQVTAMPPETPLPIGMPGVIRCPVRANPPLLFV	PLLFV
SLR	LLATQPDDA	GCYTCVPSNG	LLHPPSASA	YLTVLYPAQV	TAMPPETPLP	SLRLLATQPDDAGCYTCVPSNGLLHPPSASAYLTVLYPAQVTAMPPETPLPIGMPGVIRCPVRANPPLLEV	PLLFV
SLR	LLATQPDDA	GCYTCVPSNG	LLHPPSASA	YLTVLSGPRM	ERPCSWTRRE	SIRLLATQPDDAGCYTCVPSNGLLHPPSASAYLTVLSGPRMERPCSWTRREMISGENDGKESRRTEVSFV	EVSFV
SLR	LLATOPDDA	GCYTCVPSNG	LLHPPSASA	YLTVLCKPDI	SESLSLLPSP	SLRLLATQPDDAGCYTCVPSNGLLHPPSASAYLTVLCKPDLSFSLSLLPSPGPGQAPLPQLATIFPQTQPR	POTOPR
SLR	LLATQPDDA	GCYTCVPSNG	LLHPPSASA	YLTVLYPAQV	TAMPPETPLP	SLRILATOPDDAGCYTCVPSNGLLHPPSASAYLTVLYPAQVTAMPPETPLPIGMPGVIRCPVRANPPLLFV	PLLFV
SLR	LLATOPDDA	GCYTCVPSNG	LLHPPSASA	YLTVLYPAQV	TAMPPETPLP	SLRLLATQPDDAGCYTCVPSNGLLHPPSASAYLTVLYPAQVTAMPPET PLPIGMPGVIRCPVRANPPLLFV	PLLFV
			i		ļ		Section 6
356		370	88	330	400	410	426
SWT	KDGKALQLD	KF PGWSQGTE	GSLIIALGN	EDALGEYSCT	PYNSLGTAGP	SWTKDGKALQLDKF PGWSQGTEGSLIIALGNEDALGEYSCT PYNSLGTAGPS PVTRVLLKAPPAFIER PKE	ER PKE
SWT	KDGKALQLD	KF PGWSQGTE	GSLIIALGN	EDALGEYSCT	PYNSLGTAGP	SWTKDGKALQLDKF PGWSQGTEGSLIIALGNEDALGEYSCTPYNSLGTAGPSPVTRVLLKAPPAFIERPKE	ERPKE
SSI	KDGKALQLD	SWTKDGKALQLDKKRDDLRGK-WQRVKKEN	-WQRVKKEN-		 		
SEL	SWTKDGKALQLDK	K	ы				

Figure 22A

Homo sapiens LIV-1 protein, mRNA

TTCTTCCACATTCTCATGCAAGTCACCACCATAGTCATAGCCATGAAGAACCAGCAATGGAAATGAAAAGAGGACCACTTTTCAGTCATCTGTCTTCTCAA SAAAATTAGTCCGAATTGGGAATCTGGCATTAATGTTGACTTGGCAATTTCCACACGGCAATATCATCTACAACAGCTTTTCTACCGCTATGGAGAAATA ATTCTTTGTCAGTTGAAGGGTTCAGAAAATTACTTCAAAATATAGGCATAGATAAAGATTAAAAGAATCCATATACACCATGACCACGACCATCACTCAGAC CACGAGCATCACTCAGACCATGAGCGTCACTCAGACCATGAGCATCACTCAGACCACGAGCATCACTCTGACCATAATCATGCTGCTTCTGGTAAAAATAA GCGAAAAGCTCTTTGCCCAGACCATGACTCAGATAGTTCAGGTAAAGATCCTAGAAACAGCCAGGGGAAAGGAGCTCACCGACCAGAACATGCCAGTGGTA ATCTGTGAGTGAGCCCCCGAAAAGGCTTTATGTATTCCAGAAACACACAAATGAAAATCCTCAGGAGTGTTTCAATGCATCAAAGCTACTGACATCTCATGGCA TGGGCATCCAGGTTCCGCTGAATGCAACAGAGTTCAACTATCTCTGTCCAGCCATCATCAACCAAATTGATGCTAGATCTTGTCTGATTCATACAAGTGAA IATCTTAGTGCCTCTCATGAATCGGGTGTTTTTCAAATTTTCTCCTGAGTTTCCTTGTGGCACTGGCCGTTGGGACTTTGAGTGGTGATGCTTTTTTTACACC aacatagaagaaagtgcctattttgattccacgtggaagggtctaacagctctaggaggcctgtatttcatgtttcttgttgtagacatgtcctcacattgat TTGGAAGAAGAAGAGGTCATGATAGCTCATGCTCCACAGGAAGTCTACAATGAATATGTACCCAGAGGGTGCAAGAATAAATGCCATTCACATTTCCA SCCAGCGCTACTCCGGGAGGAGCTGAAAGATGCCGGCGTCGCCACTTTGGCCTGGATGGTGATAATGGGTGATGGCCTGCACAATTTCAGCGATGGCCTA ICTACTAAAGGCTGGCATGACCGTTAAGCAGGCTGTCCTTTATAATGCATTGTCAGCCATGCTGGCGTATCTTGGAATGGCAACAGGAATTTTCATTGGTC ATGGCGAGGAAGTTATCTGTAATCTTGATCCTGACCTTTGCCCTCTCTGTCACAAATCCCCTTCATGAACTAAAAGCAGCTGCTTTCCCCCAGACCAGACTAA SAAGGAATGTCAAGGACAGTGTTAGTGCTAGTGAAGTGACCTCAACTGTGTACAACACTGTCTCTGAAGGAACTCACTTTCTAGAGACAAATAGAGACTCCA CAAACAATTTAAAGATAAGAAAAAAAAAAGAATCAGAAACCTGAAAATGATGATGATGTGTGGAGATTAAGAAGCAGTTGTCCAAGTATGAATCTCAACTTT CAACAAATGAGGAGAAAGTAGATACAGATGATCGAACTGAAGGCTATTTACGAGCAGACTCACAAGAGCCCTCCCACTTTGATTCTCAGCAGCCTGCAGTC SCAATTGGTGCTGTTTTACTGAAGGCTTATCAAGTGGTTTTAAGTACTTCTGTTGCTGTTTTTGTTCATGAGTTGCCTCATGAATTAGGTGACTTTGCTGT **FAAAATCGTGTTTCGTATAAATTTCTAG**

Figure 22B

Homo sapiens LIV-1 protein

AIGAAFTEGLSSGLSTSVAVFCHELPHELGDFAVLLKAGMTVKQ**AVLYNALSAMLAYLGMATGIFIG**HYA<u>EN**VSMWIFALTAGLFMYVALVDMV**P</u>EMLHND HEHHSDHERHSDHEHHSDHRHAASGKNKRKALCPDHDSDSSGKDPRNSQGKGAHRPEHASGRRNVKDSVSASEVTSTVYNTVSEGTHFLETIETP R PGKLF PKDVSSSTPPSVTSKSRVSRLAGRKTNESVSE PRKGFMYSRNTNEN PQECFNASKLLTSHGMGI QVPLNATEFNYLCPAI INQIDARSCLIHTSE KKAEIPPKTYSLQI**AWVGGFIAISIISFLSLLGVILV**PLMNRVFFK**FLLSFLVALAVGTLSGDAFLHL**LPHSHASHHHSHSHEBPAMEMKRGPLFSHLSSQ **MARKLSVILILTFALSVTNPLHELKAA**AFPQTTEKISPNWESGINVDLAISTRQYHLQQLFYRYGENNSLSVEGFRKLLQNIGIDKIKRIHIHHDHDHHKSD NI EESAYFDSTWK*GLTALGGLYFMFLVEHVLTLI* KQFKDKKKKNQKKPENDDDVEI KKQLSKYESQLSTNEEKVDTDDRTEGYLRADSQEPSHFDSQQPAV LEEEEVMIAHAHPQEVYNEYVPRGCKNKCHSHFHDTLGQSDDLIHHHHDYHHILHHHHQNHHPHSHSQRYSREELKDAGVATLAWMVIMGDGLHNFSDGL ASDHGCSRWGYFFLQNAGMLLGFGIMLLISIFEHKIVFRINF

Figure 23

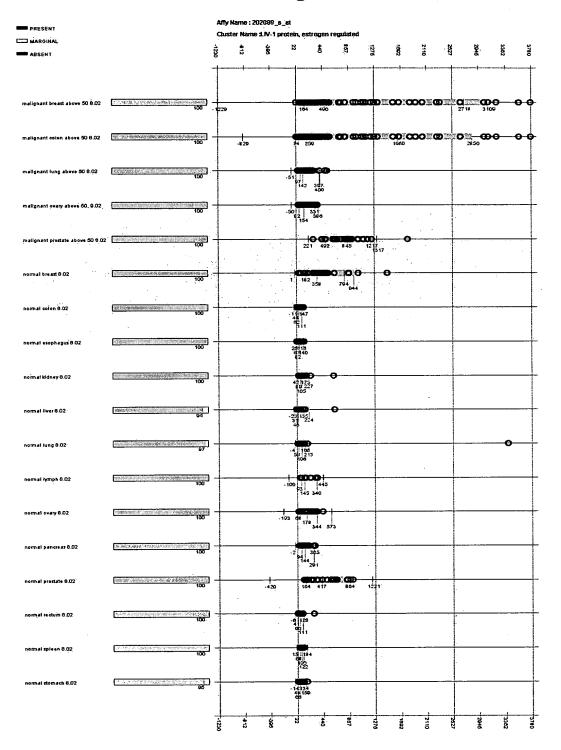


Figure 24

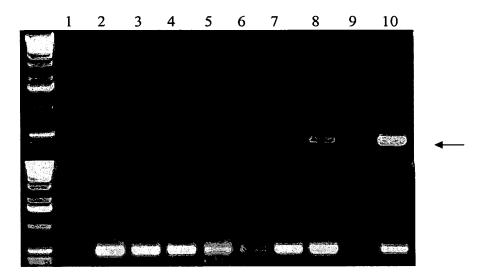


Figure 25

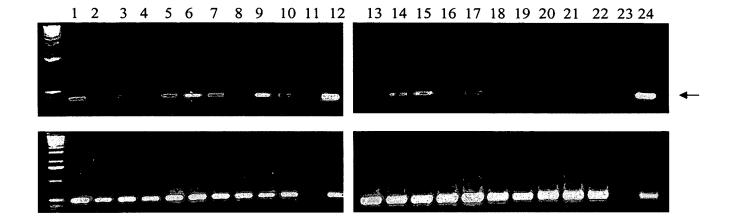


Figure 26

